

Public Sector

# DATA IN MOTION TO ACCELERATE DoD MISSIONS



The Department of Defense (DoD) mission effectiveness depends on the ability to view data as a strategic asset, enabling data collection at the point of creation while maintaining the lineage of that data at all times for better decision-making.

In 2020, the DoD released an [executive summary](#) of the department’s data strategy: “providing the overarching vision, focus areas, guiding principles, essential capabilities, and goals necessary to transform the department into a data-centric enterprise.”

The harnessing of data in motion will enable the DoD to maximize new strategic and tactical opportunities. However, data-centric obstacles remain, including:

- Siloed and inaccessible data
- Data collection
- Integration of new data sources
- Leveraging all of their data to gain insights

### Data Lifecycle: Impacts and Opportunities

By harnessing data in motion, government IT leaders can turn yesterday’s data challenges into tomorrow’s agency-defining opportunities. This is the guiding principle of Cloudera DataFlow, a data-in-motion platform that supports the entire streaming journey, from collection and flow management at the edge to stream processing and analytics.

Agencies across the DoD must be able to collect, ingest, and move data so it can be analyzed, reported, and used to deliver new insights and predict future ones as effectively as possible. To get there, defense agencies must be able to take data from where it is and move it to where it can best be used by anyone. Data in motion is the foundation of effective and efficient data governance enabling improved decision-making, increased transparency, and reduced waste.

Cloudera DataFlow’s embedded low-code technology empowers users (no matter their individual role) to focus on business logic, while the platform abstracts away much of the backend complexity to provide an end-to-end data lifecycle that effectively supports the most ambitious defense missions.

**CONDITION-BASED  
MAINTENANCE BENEFITS**

**-35%**

Reactive maintenance mix reduced - from 50% to 15%

**-7000 hours**

Overall maintenance reduced - 7000 hours avoided on two platforms

**+30%**

Increased proactive maintenance, asset availability, and operational readiness - fighter operational availability increased from 60% to 90%

Establish an environment "where reactive, unscheduled maintenance can be replaced with predictive maintenance (PdM) executed at the most opportune time and location with the right people, parts, and tools."

Nick Smith, CBM/CBM+ Division Lead

**Zero Trust Takes Center Stage**

Security and governance are critical requirements for cyber security and data streaming strategies, including the implementation of a zero trust approach.

The January 26, 2022 OMB [mandate](#) requires "agencies to meet specific cybersecurity standards and objectives by the end of Fiscal Year (FY) 2024 in order to reinforce the government's defense against increasingly sophisticated and persistent threat campaigns." This creates added complexity for IT leaders and teams, especially as the scope and scale of their data grows.

Few defense agencies can throw unlimited resources at the challenge, underscoring the necessity of a low-code-enabled data platform that scales seamlessly and securely across private cloud and on-premises environments.

**Delivering Data Security and Governance**

Cloudera's end-to-end approach to data in motion supports a robust data governance model, which includes the entire data lifecycle, from ETL to AI and machine learning.

With Cloudera DataFlow (CDF) and Shared Data Experience (SDX), Cloudera's Data in Motion philosophy supports the entire streaming data journey from data capture and flow management at the edge to provisioning that data directly to or from your Kafka messaging backbone.

SDX provides a common set of integrated services, including unified security and governance across datacenters and cloud environments consistently while decreasing operational overhead.

**Real-World Public Sector Use Case**

**Using Data and Analytics to Improve the Operational Readiness of Aircraft**

Historically, the DoD command's aircraft maintenance program was largely reactive and costly. With fly-to-failure methods in use across a diverse aircraft portfolio that depended on static maintenance schedules and time-based component replacement, system upgrade alerts were being ignored leading to unscheduled maintenance, lower asset availability and operational readiness, and higher life-cycle costs.

To address these issues, the DoD sought to identify and integrate data from existing systems of record with aircraft system sensor data and develop Condition Based Maintenance Plus (CBM+) capabilities fed by a variety of data sources, enabling end-user reporting, analysis and predictive AI/ML models.

Through the integration and analysis of aircraft system sensor data with other command data sources on the Cloudera platform, the DoD command can now leverage CBM+ capabilities, gaining the ability to:

- Forecast the need for maintenance
- Maintain the health of the weapon system
- Remove components prior to failure
- Realize aircraft operational availability

As a key partner on the command's journey to implement CBM+ within the DoD, Cloudera was instrumental in eliminating data silos, performing comprehensive analysis and prediction for informed decision-making, improving operational availability, and reduced life-cycle costs.

